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What SARS-CoV-2 Does to the Body (2nd Edition, July 2023)

An Incomplete and Growing Resource

JUL 7, 2023



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Last November, [we posted a compilation of over a hundred studies and articles](#) on how the SARS-CoV-2 virus can harm the body. It's been a little over six months since then, and a lot more research has been published since then. So, it's long overdue to revisit our understanding of why it's just so important to prevent infections from a deadly & disabling virus that has ended and upended the lives of millions around the world - [in Europe alone, the WHO is saying that over 36 million are suffering from Long COVID disability](#), an umbrella term for numerous medical complications.

Those who have insisted that SARS-CoV-2 is relatively harmless or “mild,” or insisted that COVID-19 is “just a cold/flu,” should be forced to contend with the ever-growing mountain of scientific research that has emerged, as new discoveries continued to be researched to this day.

CHILDREN & COVID



Courtesy of Greg Travis via Twitter (@greg_travis)



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[\(University of Oxford\)](#)

- [Surge in child and teen diabetes \(Jama Network\)](#)
- [“Two US studies describe pediatric COVID...7.0% of hospitalized children developed neurologic complications such as seizures...even mild infections can lead to long COVID.” \(University of Minnesota\)](#)
- [More than 70% of US household COVID spread started with a child \(CIDRAP\)](#)
- ["Persistence of LV myocardial deformation abnormalities in previously healthy children with an asymptomatic or mildly symptomatic COVID-19 course after an average follow-up of 148 ± 68 days." \(MDPI Open Access Journals\)](#)
- [“Inflammatory markers and pulmonary function in adolescents and young adults 6 months after mild COVID-19” \(Frontiers in Immunology\)](#)
- [“Fever, vomiting, and eye pain are a few of the symptoms afflicting a small number of children after they have been infected with COVID-19.” \(NHK\)](#)
- [COVID-19 May Trigger Autoimmune Responses in Children \(HCPLive\)](#)
- [“...increased rates of asthma, myocarditis and cardiomyopathy, cardiac dysrhythmias, diabetes, renal failure, venous thromboembolism, and coagulation disorders in children with laboratory-confirmed COVID-19 compared with children without COVID-19.” \(Medical Journal of Australia\)](#)
- [“32.6% of the children had persistent symptoms at 2 months, 9.3% at 4 months, and 2.3% at 6 months” \(Frontiers in Pediatrics\)](#)
- [Children’s immune systems do not develop ‘adaptive’ memory to protect against second time SARS-CoV-2 infection \(Garvan Institute of Medical Research\)](#)
- [Based on 40 studies with 12,424 individuals, the pooled prevalence of any long COVID was 23.36 % \(ScienceDirect\)](#)
- [“Omicron strain causes 7 times more deaths among hospitalised children than influenza” \(South China Morning Post\)](#)
- [“In Ohio, between 30,000 and 70,000 children have long COVID.” \(US News\)](#)
- [COVID-19 Heart Lesions in Children: Clinical, Diagnostic and Immunological](#)

- [Multisystem inflammatory syndrome in children: A dysregulated autoimmune disorder following COVID-19 \(ScienceDirect\)](#)
- [COVID-19 and Acute Neurologic Complications in Children \(American Academy of Pediatrics\)](#)
- [Ocular manifestations of COVID-19 in pediatric patients \(SageJournals\)](#)
- [Health Impairments in Children and Adolescents After Hospitalization for Acute COVID-19 or MIS-C \(American Academy of Pediatrics\)](#)
- ["Virtually all children infected with COVID-19 show signs of blood vessel damage" \(Blood Advances\)](#)
- ["Findings from our study support that prior COVID-19 infection was associated with a significantly increased risk for RSV infection and was a driving force for the 2022 surge of severe pediatric RSV cases in the US." \(medRxiv\)](#)
- ["12-16% children and youth infected with Omicron met the research definition of #LongCovid at 3 and 6 months after infection, with no evidence of difference between cases of first-positive and reinfection" \(Journal of Pediatrics\)](#)
- [Type 1 Diabetes Incidence and Risk in Children With a Diagnosis of COVID-19 \(Jama Network\)](#)
- [Long-COVID in children and adolescents: prevalence of long-COVID was 25.24%, most prevalent clinical: mood symptoms \(16.50%\) - \(Nature\)](#)
- [Abnormal Surge of Brain Abscesses in American Children, CDC Says \(ScienceAlert\)](#)
- [Increased red blood cell deformation in children and adolescents after SARS-CoV-2 infection \(Nature\)](#)
- [Children are at as much risk of Long COVID disability from reinfection as they are from primary infection \(Journal of Pediatrics\)](#)
- ["in children, independent from disease severity, SARS-CoV-2 can spread systemically and persist for weeks to months." \(Lancet\)](#)

COGNITIVE & NEUROLOGICAL IMPAIRMENT



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- [Smell and taste dysfunction after covid-19 \(BMJ\)](#)
- [Neuropsychological deficits in patients with persistent COVID-19 symptoms \(Nature\)](#)
- [Neuroinflammation After COVID-19 With Persistent Depressive and Cognitive Symptoms \(JAMA Psychiatry\)](#)



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- [Long-term consequences of COVID-19 on cognitive functioning up to 6 months after discharge: role of depression and impact on quality of life \(Springer Link\)](#)
- [SARS-CoV-2 is associated with changes in brain structure \(Nature\)](#)
- [1 in 4 Showing Cognitive Deficits After Mild Case \(NIH\)](#)
- [Neurocognitive and psychiatric symptoms following infection with COVID-19: Evidence from laboratory and population studies \(ScienceDirect\)](#)
- [COVID-19 and cognitive impairment: neuroinvasive and blood-brain barrier dysfunction \(Journal of Neuroinflammation\)](#)
- [Covid causes brain cells to abnormally fuse together, causing impairments in brain function & in 10% of study cases neuronal activity completely stopped \(ScienceAdvances\)](#)
- [COVID-19 may also lead to brain fog by affecting different brain regions through hyperactivation of the immune response, cell death, or inflammation \(CIDRAP\)](#)
- [Rapid Progression of Dementia Following COVID-19 \(NIH\)](#)

HEART & CARDIOVASCULAR HEALTH

- [Heart attacks in people ages 25 to 44 increased by 30% compared to the expected number over the first two years of the COVID-19 pandemic \(Wiley Online Library\)](#)
- [1 in 3 Covid infections cause new onset high blood pressure, which can cause strokes and heart attacks \(ScienceDirect\)](#)
- [“even mild cases of Covid can lead to changes in your arteries which can cause an increased chance of heart attacks and stroke” \(MDPI\)](#)
- [Unlike flu, COVID-19 attacks DNA in the heart: new research \(Immunology\)](#)
- [Heart Attack Outcomes Far Worse for Those With COVID-19 \(Cedars Sinai\)](#)
- [COVID-Positive Donor Heart Tied to Lower Recipient Survival \(Medscape\)](#)
- [COVID-19 vaccination linked to fewer cardiac events \(EurekAlert\)](#)
- [Heart complications 2-8x higher with COVID infection than myocarditis in young](#)



- [Multiple studies showed that COVID-19 increases the risk of heart inflammation more than vaccines do; study in Israel misleadingly used to claim otherwise](#) (Health Feedback)
- [Association of COVID-19 with short- and long-term risk of cardiovascular disease and mortality](#) (Oxford Academic)

IMMUNE SYSTEM

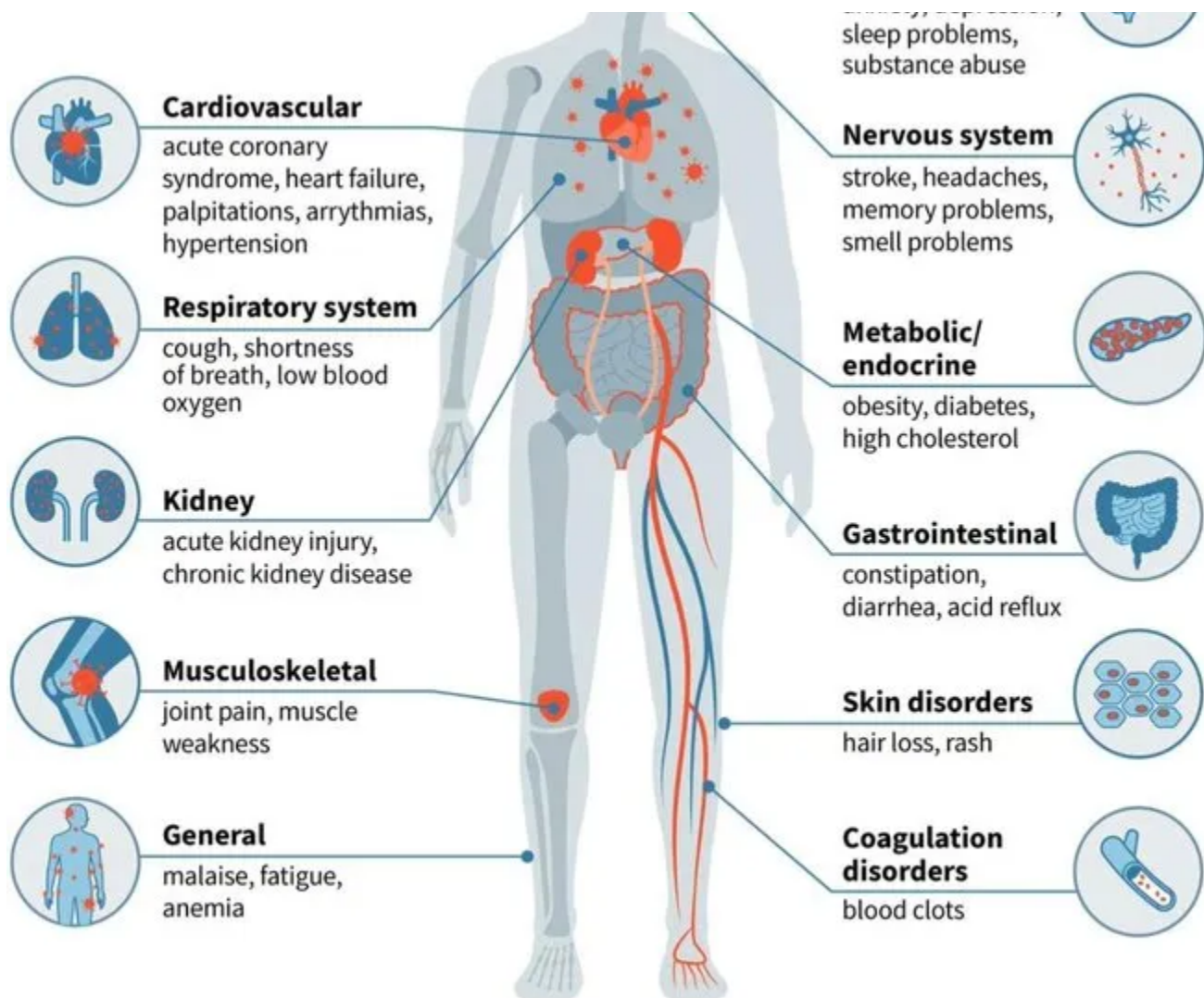
- [SARS-CoV-2 Infection Weakens Immune-Cell Response to Vaccination](#) (NIH)
- [COVID-19 patients share common, corticosteroid-independent features of impaired host immunity to pathogenic molds](#) (medRxiv)
- [Rise in hospitalizations for fungal infections during COVID-19](#) (CIDRAP)
- [Immune System Runs Amok Months After COVID](#) (UCSF)
- [The Concept of Classical Herd Immunity May Not Apply to COVID-19](#) (Infectious Diseases Society of America, March 2022)
- [Deep Phenotyping of Neurologic Postacute Sequelae of SARS-CoV-2 Infection](#) (Neurology Neuroimmunology & Neuroinflammation)

LIVERS, KIDNEYS & DIABETES

- [Up to one in 20 new diabetes cases could be linked to Covid](#) (JAMA Net Open)
- [Millions of COVID-19 patients may have undiagnosed acute kidney injury](#) (PLOS Medicine)
- [Out of 17531 hospitalized patients, more than ½ developed liver damage, 8% having damage that was severe.](#) (medRxiv)

LONG COVID & DISABILITY





SARA MOSER

- ["The total cost of long COVID is \\$3.7 trillion. 59% of the cost is lost quality of life; the remainder is reduced earnings and greater medical spending." \(Harvard\)](#)
- [Long COVID: Primate study reveals forms of 'brain injury' \(Medical News Today\)](#)
- [Long COVID: The impact on language and cognition \(ScienceDirect\)](#)
- [Altered brain connectivity in Long Covid during cognitive exertion \(Frontiers in Neuroscience\)](#)
- [Cognitive Deficits in Long Covid-19 \(The New England Journal of Medicine\)](#)
- [Individuals With Long COVID More Likely to Experience Heart Problems \(American College of Cardiology\)](#)

[from the infection date. \(Oxford\)](#)

- [“One in 20 K-12 educators believe they have long COVID” \(Education Week\)](#)
- [“46% of doctors with Long Covid who replied to this survey have developed it since vaccines were available” \(British Medical Association\)](#)
- [“Long COVID is leaving a legacy of chronic diseases...Health systems and governments need to be prepared for the long-lasting consequences for patients, health systems, life expectancy and economic productivity.” \(Outlook Magazine\)](#)
- [“Approximately 18 percent of workers with Long Covid—or about five percent of Covid-19 claimants—could not return to work for more than one year.” \(NYSIF\)](#)
- [Brazilian HCW Study: “Of 7,051 HCP diagnosed with COVID-19, 1,933 \(27.4%\) who developed long COVID” \(Cambridge\)](#)

OVERALL MORTALITY

- [‘A death sentence’: More than 600 people die after catching COVID in hospital \(The Age, Australia\)](#)
- [“A rampage through the body: The lungs are ground zero, but COVID-19 also tears through organ systems from brain to blood vessels” \(Science\)](#)
- [COVID can stay in body 'for months', autopsies reveal \(Nature\)](#)
- [Reinfections led to hospitalisation and death more among young adults than people over 65 during Omicron era \(CDC\)](#)
- [Over 1,300 Educators Died From COVID \(EducationWeek\)](#)
- [“Omicron has comparable intrinsic severity to the ancestral Wuhan strain” \(Oxford\)](#)

PREGNANCY

- [Maternal SARS-CoV-2, Placental Changes and Brain Injury in 2 Neonates \(American Academy of Pediatrics\)](#)



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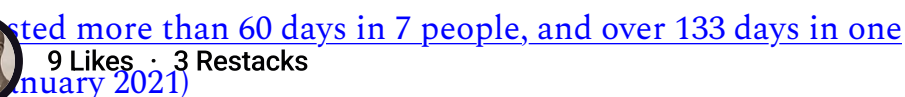
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- Cases and severe outcomes associated with SARS-CoV-2 reinfection have increased across the United States since September 2021. (CDC)
- Repeat COVID is riskier than first infection (Nature)

- [SARS-CoV-2 Damages The Testes & Testicular Tissues, Crosses The Blood-Testes Barrier! \(Frontiers in Reproductive Health\)](#)
- [Covid reduces quality of men's semen for months after even mild infection \(WalesOnline\)](#)
- [Sperm counts decline even after mild COVID infections \(CIDRAP\)](#)

- Study of 234 people with COVID-19 skin symptoms. Most lasted a median of two weeks, but were persistent in a subset of patients. Pernio (a painful, inflammatory



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